

IN THE CLAIMS:

Please add new claims 22-26, cancel claims 11-21 and amend claims 1, 2, 4 and 6 to read as follows:

1. (Currently Amended) ~~In~~ An apparatus for the measurement of physical and/or chemical quantities using a light source and a light guide to couple the light of the light source ~~in~~ into an optical resonator shaped as microparticle, and means for the observation of ~~the~~ light decoupled from the resonator, the improvement wherein an end portion of the light guide is hollow, defining an inner space, and wherein the resonator is at least partly mounted in a ~~cutout~~ said space formed ~~in~~ within the light guide and is fixed there mechanically and coupled optically to the light guide.

2. (Currently Amended) Apparatus according to claim 1, wherein the ~~cutout~~ said space is formed ~~on~~ at a free end of the light guide having an opening to the front side of the light guide.

3. (Previously Presented) Apparatus according to claim 1, wherein the light guide is a hollow waveguide.

4. (Currently Amended) Apparatus according to claim 3, wherein the hollow waveguide has ~~at least~~ at a first position a larger inner diameter than at a second position, the first position being close to a free end and the second position being farther from the free end.

5. (Previously Presented) Apparatus according to claim 1, wherein only one light guide is present, and wherein the light guide light propagates in a first propagation direction from the light source to the resonator and back from the resonator in a second, opposite propagation direction.

6. (Currently Amended) Apparatus according to claim 1, wherein the resonator contacts the light guide at at least two locations which are separated by a distance, and the resonator is held there in contact by at least one of self-clamping forces and adhesive forces that act between the resonator and light guide.

7. (Previously Presented) Apparatus according to claim 1, wherein the resonator is positioned on the light guide in such a way that a gap remains between the resonator and a light guiding part of the light guide.

8. (Previously Presented) Apparatus according to claim 1, wherein the light guide is tapered at its free end.

9. (Presently Presented) Apparatus according claim 1, wherein the light guide is closed at its free end by at least one of a cap and a sealing compound.

10. (Previously Presented) Apparatus according to claim 1, wherein the light guide has at least one lengthwise slit on its end.

11. - 21. (Canceled).

22. (New) Apparatus according to claim 1, wherein more than half of said resonator is received in said space.

23. (New) Apparatus according to claim 6, wherein said distance is larger than half of a diameter of said resonator.

24. (New) An apparatus for the measurement of physical and/or chemical quantities using a light source and a light guide to couple the light of the light source into an optical resonator shaped as microparticle, and means for the observation of the

light decoupled from the resonator, the improvement wherein the light guide is a hollow waveguide and the resonator is at least partly mounted within the hollow waveguide and is fixed there mechanically and coupled optically to the light guide.

25. (New) Apparatus according to claim 24, wherein the hollow waveguide has at least at a first position a larger inner diameter than at a second position, the first position being close to a free end and the second position being farther from the free end.

26. (New) An apparatus for the measurement of physical and/or chemical quantities using a light source and a light guide to couple the light of the light source into an optical resonator shaped as microparticle, and means for the observation of the light decoupled from the resonator, the improvement wherein the resonator is at least partly mounted in a cutout formed in the light guide and is fixed there mechanically and coupled optically to the light guide, wherein only one light guide is present, and wherein the light guide light propagates in a first propagation direction from the light source to the resonator and back from the resonator in a second, opposite propagation direction.